How the Earth Narrowly Escaped A Race of Giants

Science Unearths a Prehistoric Monster That Might Have Taken Man's Place If It Had Only Known What to Do with Its Thumbs

The Giant Dinosaur Iguanodon As Restored by Scientists of the American Museum of Natural History, New York. The Reptilian Monster with Its Immense Man-Like Forelimbs, Hands and Spiked Thumb Is Shown in Its Characteristic Walking Attitude Beside the Type of Primitive Man Who Evolved Some 15,000,000 Years After Its Extinction.

The Meeting of Little David and the Giant Goliath of the Biblical Account; an Interesting Picturization of the Famous Encounter by a Distinguished European Artist.

The Cyclops Polyphemus Attacking the Boat of Ulysses. A. Boecklin's Painting of the Classical Legend of the One-Eyed Giants Described by the Greek Poet Homer.

Photo, American Museum of Natural History.

A Reconstruction of the Giant Iguandon As He Must Have Appeared When Living.

By Dr. W. H. Ballou.

FROM earliest times the mind of man has delighted in thinking about and talking about and making pictures about giants. The Bible in Genesis, chapter vi., verse 4, says vaguely: "There were giants in the earth in those days." And more definitely, in I. Samuel, chapter xvii., verses 38-51, tells with great detail of the battle between little David and the giant Goliath.

Every school child knows the story book tale of "Jack and the Bean Stalk" or "Jack the Giant Killer," who climbed up the beanstalk and killed the monster who lived above, and of "Hop o' My Thumb," who pulled the Seven League Boots off the ogre and murderous ogre, and the adventures of Gulliver in the land of the immense Brobdingnagians. Classical history, too, concerns itself with the great Cyclops with the one eye in the centre of his forehead, with Titans who defied Jove and were buried under mountains as punishment, Atlas, who was so huge that he was supposed to be able to carry the earth on his shoulders, and other mythical personages of mammoth size.

Science has regarded these tales in fiction, mythology and the Scriptures with considerable interest, but has never been able to find any scientific evidence that a race of giants really ever dwelt upon the earth. But science has recently made the very interesting discovery that this very thing did almost happen—that the earth very narrowly escaped a race of giants. Indeed, the evolution of one of the prehistoric species of enormous dinosaurs had progressed to such a point that a beast of enormous height and bulk was beginning to travel over the face of the earth on his hind legs, when a curious fundamental defect in its anatomy brought the threatening race of giants to an end forever.

If these creatures, who stood twenty feet high and had arms, hands, fingers and thumbs, had progressed to the same degree that the monkey ultimately achieved, it is not impossible that mankind as it peoples the earth to-day would have been exterminated and the dwellers in the great cities of the world and the tillers of the land throughout the countryside of the earth would have been veritable giants, three times as tall as modern man and twenty times as bulky and powerful in their muscles.

It was 1,068 feet underground, in a coal mine at Bernissart, in Belgium, near the French frontier, that scientists came suddenly face to face with eighteen of these giants. Workmen under the guidance of experts were excavating a trial gallery in an effort to locate missing coal seams. After a time the picks of the miners cut into a cavity that some eighteen million years ago had been a gorge through which a river ran. Its walls were sharply defined by coal seams several hundred feet thick.

So interesting and unique was this long buried place that galleries and pits innumerable were cut into it under the observation and direction of certain picked scientists of France, Belgium and England. As investigations went on a clear picture of what the crevasse must have been in those ancient times presented itself to the observers. The place had been an open valley cut out of rocks of the carboniferous age by a mighty stream in just the same way that the Grand Canyon has been cut out of its rock by the Colorado. Its sides had been clothed with giant ferns and forests of gigantic trees now extinct. In the river that then ran through it were big fresh water tortoises, large primitive fishes with enamelled scales, and monstrous crocodiles. The foliage and herbage along its shores and in its marshes had provided the favorite foods for gigantic herbivorous dinosaurs named Iguanodons, incomplete remains of which had been previously found.

Suddenly a wide deep pocket of black clay was struck. And in it, preserved as though by plaster, were a dozen and a half perfect skeletons of these great dinosaurs!

The history of the ancient valley was now fully revealed. A flood had swept down, had caught the dinosaurs as they were feeding and had hurled them into a pit in the river bed, where they had strangled in the black mud that filled it. It was this mud which later had hardened into the black clay. During the ages following the gorge had filled up with debris so that all trace of it was invisible from the surface. In the matrix which had encased the giants were casts of their softer outer parts and musculature, which had of course, long since vanished from the fossilized bones.

When the actual picture of the Iguanodon as it had appeared when alive was gained, a very astonishing picture it was! It walked upright upon powerful legs nine feet long. Its forelegs were literally arms and far more human in their structure than are the arms of the gorilla of to-day. Not only that, but the monster boasted true hands, even more human in design. These hands had five digits, four fingers, and a true thumb. It was manifest that the arms and hands were no longer used for walking than humanity of to-day uses its arms and hands for the same purpose.

And this combination of a creature which walked upright and which had evolved not only the human arms but also a thumbed hand set the scientists to marveling. It was Herbert Spencer who said that the history of man's progress from his primitive ancestors was gauged by development of his thumb. What Spencer meant was that man's progress was made possible by his hand mechanism and that without the thumb the hand would have been useless. If you do not believe this try tying your thumbs to your palms and then seeing what you can do with the remaining four fingers.

The scientists found out other very remarkable things. This monster, which Nature had given such a chance to rule the earth instead of man—at that time nothing but a little tree shrew—was hairless. His great body, all except the powerful tail, was clothed in smooth eel-like skin without a particle of armor. His feet were three-toed, with exactly the same number of joints as in the foot of the bird; three joints to the inner toe, four joints to the middle toe, and five joints to the outer toe. He could run with the speed of an express train—at least a mile a minute the scientists calculated. He had eighty teeth, clearly adapted to chewing leaves and shoots of plants.

Why, then, with all these advantages over the other creatures of his time—for there were not as yet any of the ferocious flesh-eating dinosaurs—why was it that Iguanodon did not proceed on the path of evolution so accommodatingly opened to him? For blocking this path man must thank the prehistoric crocodile. There seems to be little doubt if it had not been for them this dinosaur might conceivably have developed enough brain power through those hands to have coped with the fiercer dinosaurs when they came along. Given that increase in brain power, there would not have been the slightest reason why this creature should not have learned how to wield clubs, make bows and arrows and spears and generally do with his hands anything the earliest man could do with his.

But there the crocodiles were. Furthermore, they loved the Iguanodons in exactly the same way the Carpenter and Walrus loved the Little Oysters. They gathered around the places where the dinosaurs found their favorite food—the river banks and marshes. Iguanodon's teeth being useless as weapons of offense or of defense against their scaled backs, his unarmored body being equally defenseless against their teeth, he was put to using those foot-and-a-half-long thumbs of his to repel the attentions of the crocodiles. The nail of the thumb was long and sharp. With his powerful arms he could turn over the crocodile and slit up its softer stomach just as you rip a fish. Continued use of the thumbs in this capacity turned them at last into more or less rigid, spike-like weapons fit to do nothing else.

Of course, in strict scientific truth, the crocodiles did not have everything to do with Iguanadon stiffening up the thumb that might otherwise have given the earth a race of giants. He used it also to dig out succulent roots that he liked to eat, manipulating it precisely as a gardener does his trowel or dibber. This specialization in the two directions of grubbing food and slitting crocodiles unfitted it for broader purposes.

The point is that if Iguanadon had philosophically given up the roots for branches and twigs his thumb would have developed in the same way that it did on the hands of man's ancestors when they used it for swinging from branches and traveling through the trees. And if for a comparatively few centuries, while doing this, he had also given up going after other food where the crocodiles lurked, there would have come a time no doubt when he could have grabbed clubs and slain the crocodiles.

By that time he would have been well on the road to mastering the earth. As long, however, as he insisted upon grubbing the roots and going where the crocodiles were, why, naturally, those who had the stiffest, the strongest and the most spike-like thumbs had all the best of their brethren with weak thumbs. Handing down these characteristics to their descendants there came a time when the Iguanadon's thumb ceased being a thumb at all. And when that moment arrived, then he was doomed to be a lizard and nothing else all the remaining span of his racial reptilian life.

It is most interesting and it is scientifically legitimate as well to conjecture what might have happened if he had let his thumbs develop.

In the slow process of evolution it was to be at least 15,000,000 years before the ape-like progenitors of man could develop. This is a very long time. Conceivably, during those ages, this giant dinosaur might not only have discovered the use of a club, but found that he could hurl stones as well. With his almost human arms and hands there is no reason why this should not have been so. From this discovery he could have passed, as man's ancestor did, to the invention of spears and bows and arrows.

And just as the monkey tail diminished and was finally lost, so might Iguanadon's tail have shrunk, and he would have walked with increasing uprightness. What a spectacle would have been a battle of such creatures! Their spears would have been as long and heavy as well-grown saplings; their bows thirty feet high with arrows perhaps twenty feet and more long. They would, manifestly, have found the necessity of covering their eel-like skins with protective materials. They would, of course, have invented shields. And as civilization increased no doubt they would have invented more deadly weapons. A regiment of these monsters could have marched carrying guns the size of the famous French 75s!

Man would probably never have evolved. Man won over the rest of animate creation by the development of his fingers and brain. But by that time the world would probably have been as much under the domination of these giants as it is to-day under the domination of man. They might have made use of our ancestors in much the same way that we use dogs and horses to-day, considering them merely as useful, intelligent animals.

And what kind of cities would they have built? What kind of architecture? What would have been their ideals of beauty, and especially of feminine comeliness? How would their women have decked their bodies and what would have been their arts and sciences? If they had progressed as far as modern dentistry there eighty big teeth would have made a problem, indeed, for the dinosaurian pocketbook. On the other hand, they would have saved all hair dressing and barber expenses. It must be remembered that man is the only fire making animal, because he has hands that can make fires. Out of fire comes all the arts and sciences there are. And the Iguanadon had hands and arms that could have been developed into members just as flexible as ours in far less time than it took to develop ours from the eel-like stock from which we sprang.

But the Iguanadon died out and earth escaped the threatened race of giants. The next appearance of the thumb came in Eocene times—8,000,000 years ago—with the lemur and with the insect-eating lemur Notharctus, the first known mammal ancestor of man.